

A Comprehensive Review On Herbal Hair Conditioner

G MAITHILI*, G TULJA RANI, C PALLAVI, K ALEKHYA, K VAMSHI

Malla Reddy Pharmacy College, Maisammaguda, Dhulapally, Secunderabad, Telangana, India.

**Corresponding author*

ABSTRACT

Hair plays a crucial role in protecting the scalp. Hair conditioners are skincare products specifically designed for application to the hair ends, serving the purposes of cleansing, conditioning, and rinsing. The growing demand for natural and environmentally friendly hair care products has driven the creation of herbal hair conditioners, blending the advantages of traditional plant-based ingredients with contemporary hair care needs. These conditioners are made with plant extracts, essential oils, and other natural elements that nourish, hydrate, and protect the hair, all while avoiding the harsh chemicals commonly found in conventional products. Ingredients such as aloe vera, henna, almond oil, coconut oil, and fenugreek are often included, known for their ability to support hair health, boost shine, minimize frizz, and improve scalp conditions. Herbal conditioners offer several advantages over synthetic alternatives, including their gentleness on the scalp and hair, compatibility with different hair types, and reduced risk of irritation or allergic reactions. These products are also typically free from parabens, sulfates, and artificial fragrances, catering to the increasing demand for clean and sustainable beauty solutions. This abstract underscores the rising significance of herbal hair conditioners in the beauty industry, highlighting their ability to deliver effective care while meeting consumer preferences for organic, cruelty-free, and eco-friendly products.

Keywords: *Herbal hair conditioner, scalp, almond oil, Flaxseed, Fenugreek.*

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I. INTRODUCTION

Herbal cosmetics are products which are made from various permitted cosmetic products to form a base in which one or more herbal ingredients are used exclusively for a specific cosmetic benefit. It takes variety of ingredients to make a good herbal medicine. Each of these ingredients has a specific role in the composition of the conditioner. Hair products are highly valued these days. Hair lotions and conditioners are included in many cosmetics products. Plant extracts such as flax extract may be included. Flax extract plays an important role in reducing hair loss and improving its condition. Hair conditioner is usually a colorless, viscous liquid that is applied and massaged [1].

Over the last past ten years, herbal products have become more popular, with 20-30% of the population are using them. These products are prepared from natural ingredients such as flowers, stems, bark, seeds, leaves, and medicinal plants. Hair conditioners are used after shampooing to help condition the hair. The herbal hair conditioner prevents from breakage, strengthening and adds shine to the hair. Formulated with key ingredients like *Achyranthes Aspera*, flaxseed, curry leaves, okra, aloe vera, and hibiscus, it provides a natural solution to keep the hair clean, smooth, and healthy. Although herbal hair conditioners tend to perform better and are safer than synthetic alternatives, they may not be as popular with consumers [1,2].

Herbal hair conditioner

In addition to conditioning, herbal hair conditioners are made with natural elements that strengthen and nourish your hair. The top conditioners for hair growth can protect your hair from the elements, restore damage, increase shine, and make your hair easier to manage [3].



Figure 1: Hair conditioner

What is hair conditioner?

Hair conditioner is a product used after shampooing to enhance the hair's texture and manageability. It typically contains ingredients like silicone, oils, and emollients, along with cationic surfactants (cleansing agents) that remove excess oils from the hair. These components work together to restore moisture lost during shampooing, leaving the hair feeling softer and more manageable [3,4].

What does conditioner do to your hair ?

Conditioner helps to hydrate and moisturize the hair, especially after shampooing, which can strip away natural oils and leave hair feeling dry and brittle. It replenishes the moisture lost during cleansing and locks in hydration, keeping the hair soft, smooth, and full of life [3,5].

Why should you use hair conditioner?

While shampoo cleans the hair and removes oils, conditioner restores moisture, making the hair smoother, shinier, and healthier. It helps improve the overall appearance and texture of the hair, leaving it soft, shiny, and manageable [6].

Advantages of herbal conditioner

- Improve hair's shine and softness.
- Decreases split ends.
- Improves hair controllability.
- Prevents from hair breakage.
- Hairsheilds from physical and chemical damage.

Disadvantages of other conditioners available in the market:

- Can be harmful to hair and are often toxic.
- May cause eye irritation.
- Typically contain ingredients like sodium lauryl sulfate and ammonium lauryl sulfate.
- Can dry out the hair shaft, leading to split ends and frizz [7,8].

Herbs as hair conditinoers

***Achyranthes aspera*:** Antioxidants improve blood circulation and nutrient delivery to the scalp, supporting hair growth. They also protect the hair cuticles from sun damage and aid in hair regrowth for individuals with alopecia.



Okra:It enhances hair growth and supports overall scalp health. Additionally, it strengthens hair follicles, functions as a natural hair conditioner, and helps in the treatment of dandruff. Beyond its cosmetic benefits, it is also used in culinary applications and exhibits antimicrobial properties. Rich in essential nutrients, it contributes to digestive well-being, helps regulate blood sugar levels, supports cardiovascular health, and strengthens the immune system.



Aloe vera: Aloevera is highly prized for its collagen content and is commonly used to soothe skin exposed to the sun. It contains vitamins that assist in repairing sun-damaged hair, and its cooling properties help relieve scalp irritation, making it a key ingredient in many hair care products.



Flaxseed: Packed with antioxidants, flaxseed oil supports hair growth and strengthens hair from the roots. It helps prevent split ends, reduces premature graying, and is also effective in treating dandruff and hair thinning.



Hibiscus: Hibiscus is renowned for its ability to stimulate hair growth, effectively control dandruff, and rejuvenate the hair. It nourishes the scalp, leading to healthier hair strands, and is frequently included in hair care products for its moisturizing and strengthening properties.



Amla: Rich in vitamin C and tannins, amla aids in calcium absorption, benefiting not only bones and teeth but also hair. It helps maintain natural hair color and prevents premature greying. With its antibacterial and antioxidant qualities, amla promotes healthy, shiny hair.



Mint: Hair growth is promoted through the preservation of vascularization in the dermal papilla of hair follicles, a process that is enhanced by peppermint essential oil (PEO), leading to the early initiation of the anagen phase. The anti-inflammatory, antimicrobial, and antioxidant properties of peppermint oil have been shown to effectively stimulate hair growth in animal models through multiple mechanisms. These findings suggest its potential use as a therapeutic or preventive alternative treatment for hair loss in humans.



Almond oil: The application of almond oil delivers intensive hydration to the scalp and strengthens hair follicles, contributing to fuller, shinier, and healthier hair. Additionally, due to its antibacterial properties,

almond oil is effective in addressing dandruff by treating dry, flaky skin and facilitating the removal of dead skin cells from the scalp.



Coconut oil: Coconut oil has traditionally been used as a hair treatment due to its beneficial effects on hair health and its potential to stimulate hair growth. The primary active component in coconut oil, lauric acid—a medium-chain fatty acid in the form of triglycerides—serves as a valuable nutrient. Its molecular structure enables it to penetrate the hair shaft effectively, thereby supporting hair nourishment and promoting growth.



Fenugreek: Hair loss, thinning, slow-growing hair, and dull or weak hair are frequent concerns in clinical dermatology. There is a growing demand for products that can support hair growth and help regulate disruptions in the hair growth cycle [4,9-12].



Table 1: Role of herbs in hair conditioners

Ingredient	Role
<i>Achyranthes aspera</i>	Hair growth stimulant
Okra	Conditioning effect
Aloe vera	Moisturizer
Flaxseed	Thickening agent
Hibiscus	Reduces hair fall
Amla	Prevents premature greying of hair

Mint	Cooling effect
Almond oil	Smoothing agent
Coconut oil	Scalp nourishment and shine
fenugreek	Hair growth stimulant

Methods: Herbal hair conditioner formulation consists of two phases; Aqueous Phase and Oil Phase.

Preparation:

Step 1: Prepare herbal extracts & gels

1. **Okra Gel:**
 - Chop 3–4 okras.
 - Boil in 1 cup water for 10 mins, strain to extract mucilage.
2. **Flaxseed Gel:**
 - Boil 2 tbsp flaxseeds in 1 cup water until it forms a gel.
 - Strain using muslin cloth.
3. **Hibiscus Paste or Infusion:**
 - Blend fresh hibiscus petals or boil dried petals in water.
 - Strain and cool.
4. **Amla Extract:**
 - Boil dried amla or use amla powder mixed in water, soak overnight.
 - Strain for use.
5. **Achyranthes aspera Decoction:**
 - Boil leaves in water (10 min), cool and strain.
6. **Fenugreek Gel/Paste:**
 - Soak seeds overnight, blend into a smooth paste.
7. **Mint Extract:**
 - Crush fresh mint leaves and extract juice or steep in hot water.

Step 2: Combine aqueous base

In a sterilized bowl:

- Mix okra gel, flaxseed gel, aloe vera gel, hibiscus infusion, amla extract, and other aqueous herbal extracts.

Step 3: Emulsify oils

- Slightly warm almond oil and coconut oil.
- Slowly blend into the aqueous phase using a hand blender (or mix vigorously by hand).

Step 4: Adjust consistency

- If too thick, add distilled water or rose water.
- If too thin, add more flaxseed gel or fenugreek paste.

Step 5: Add preservative (if storing for more than a few days)

- Add a natural preservative or store in the fridge for up to 1 week without one.

Applications

- **Use:** After shampooing, apply to damp hair.
- **Leave-in Option:** Use small quantity on ends of hair.
- **Rinse-off Option:** Leave for 10-15 min, rinse with lukewarm water.

Storage & shelf-life

- ✓ In the absence of preservatives, the product should be stored under refrigeration and consumed within 5 to 7 days to ensure safety and quality.
- ✓ When preservatives are incorporated, the product's shelf life extends to approximately 3 to 4 weeks, provided it is kept in a cool, dark environment.

Evaluation parameters: Herbal hair conditioner formulations were developed and evaluated using specific organoleptic attributes and physicochemical parameters.

pH Analysis: The pH of the herbal hair conditioner was assessed by immersing pH indicator strips in the conditioner solution for 10 min, after which the resulting color change was compared against a standard pH colour chart to determine the pH value. The typical pH range for human hair strands is between 3 and 5, while the acceptable pH range for hair conditioners falls between 3 and 7.5.

Dirt Dispersion Test: To evaluate the dirt dispersion capacity of the conditioner, two drops of the formulation were added to a test tube containing 10 mL of distilled water, followed by the addition of a single drop of Indian ink. The test tube was then sealed and shaken ten times. The extent of ink present in the foam was observed and categorized as none, light, medium, or heavy.

Moisturizing Time Determination: Spherical balls weighing 1 gram and measuring 20 cm³ in volume were carefully placed on the surface of 60 mL samples of various diluted conditioner formulations. The total time taken for each ball to completely sink was recorded to assess the moisturizing capacity of the conditioners.

Viscosity Measurement: The viscosity of the conditioner formulations was determined using a Brookfield rotational viscometer. During the analysis, the spindle was immersed in the sample and rotated at a constant speed, allowing the instrument to measure the resistance to flow, which reflects the viscosity of the formulation.

Wetting Time: The wettability of surfactants depends on their concentration in the formulation and is commonly tested to assess surfactant effectiveness. Wet time was determined by measuring the time it took for the disc to sink into the conditioner.

Stability Testing: Store the herbal hair conditioner at 37°C for 6 weeks and observe changes in colour and viscosity.

Washability: The conditioner applied on hair was easily removed by washing with tap water.

Grittiness: The formulation was evaluated for the presence of particulate matter by applying it to the skin to assess its texture and ensure the absence of any gritty residues.

Desirable properties of an ideal hair conditioner:

An effective hair conditioner should exhibit key functional attributes, including moisturizing and nourishing capabilities, as well as smoothing and calming effects on the hair. Additionally, it should facilitate detangling, enhance shine and luster, and possess a lightweight, non-greasy texture. Preference is also given to formulations that are natural and free from synthetic chemicals [12-19].



Figure 2: Marketed herbal hair conditioner

II. CONCLUSION

In conclusion, after reviewing various herbal hair conditioners, it's evident that these products offer promising benefits such as nourishing the scalp, promoting hair growth, and improving overall hair health. The blend of botanical extracts not only addresses specific hair concerns but also contributes to overall scalp health. Carefully selected herbs work synergistically to nourish the hair from root to tip, providing essential nutrients and moisture. Reetha, fenugreek (methi), rosemary, amla, flaxseed, okra, coconut oil, almond oil etc provides beneficial nutrition to hair for smooth shiny and dandruff free hair. However, it's essential to choose a conditioner that aligns with your specific hair needs and preferences. It's important to conduct thorough research, read reviews, and consider consulting with a dermatologist to review possible side effects. By incorporating a high-quality herbal hair conditioner on hair care routine, potentially achieve healthier, more vibrant hair. We must trust in the potency of nature for a truly enriching hair care journey.

REFERENCES

- [1]. Waghmare BR, Tambe BD. Development and estimation of herbal hair conditioner by *Annona squamosa*. Int J Sci Res Arch. 2024;11(2):164716-53.
- [2]. Edwin S, Jarald EE, Deb L, Jain A, King H, Dutt KR, et al. Wound Healing and Antioxidant Activity of *Achyranthes aspera*. Pharm Biol. 2008;46(12):824-828.
- [3]. Syed Ismail Jabiullah, Jainendra Kumar Battineni, Vasudha Bakshi, Narender Boggula. *Tinospora cordifolia*: A medicinal plant: A review. Journal of Medicinal Plants Studies. 2018; 6(6):226-230.
- [4]. Jujgar, Gauri S, et al. Formulation and evaluation of herbal hair mask. Journal of Pharmacognosy and Phytochemistry. 2024;13:51-59.
- [5]. Pariksha, Munish Goyal, Nasira Abbasi, Sharandeep Kaur. Formulation and Evaluation of Herbal Hair Conditioner. Int. J. of Pharm. Sci. 2025; 3(4):9288-9292.
- [6]. Chandhary G. *Lawsonia inermis* Linnaeus :A phytopharmacological review. Int J Pharm Pharm Sci. 2016; 6:630-48.
- [7]. Goyal A, Sharma V, Upadhyay N and Gill S. Flax and flaxseed oil an ancient medicine and modern functional food. J Food Sci Technol. 2014; 59(9):1633.
- [8]. Mainkar AR, Jolly CI. Evaluation of commercial herbal shampoos. Int J Cosmet Sci. 2000;22:385-391.
- [9]. Enjamoori Vijay Kumar, Nampalli Avinash, Vasudha Bakshi, Gangarapu Kiran, Boggula Narender. A Review on *Leucas aspera* for Phytopharmacological Studies. INNOSC Theranostics and Pharmacological Sciences. 2019; 2(1):1-5.
- [10]. Penkar, Gayatri M., et al. An overview on Indian herbs in hair care therapy. Research Journal of Pharmacognosy and Phytochemistry. 2023; 15:161-166.
- [11]. Kanedi, Mohammad. Indonesian plants potentially to be used as the hair growth promoting agent. GSC Advanced Research and Reviews. 2022; 10:171-175.
- [12]. Kompelly A, Kompelly S, Vasudha B, Narender B. *Rosmarinus officinalis* L.: an update review of its phytochemistry and biological activity. Journal of Drug Delivery and Therapeutics. 2019; 9(1):323-330.

- [13]. Deveoglu, Ozan. A Review on onion skin, a natural dye source. *Journal of Textiles, Coloration and Polymer Science*. 2022; 19:307-319.
- [14]. Dipakbhai, Patel Avani, and Rajvi J. Mahida. Review of Natural Resources used to Hair Dye and Hair Care Products. *Journal of Pharmaceutical Sciences and Research*. 2021; 13:546-552.
- [15]. Ishii MK. Objective and instrumental methods for evaluation of hair care product efficacy and substantiation of claims. In: *Hair and hair care*. New York: Marcel Dekker, Inc; 1997, p. 261-302.
- [16]. Arora P, Nanda A, Karan M. Shampoos based on synthetic ingredients vis-à-vis shampoos based on herbal ingredients: A review. *Int. J. Pharma Sci. Rev. Res*. 2011; 7:41.
- [17]. Singh Abhishek, Saxena Abhishek. Formulation & Evaluation of Herbal Anti-Dandruff Shampoo from Bhringraj leaves. *Pharmacy Practice & Research CR Journals*. 2020; 1(1):5-11.
- [18]. Pal. S.Rashmi, Saraswat Nikita, Wal Pranay, Wal Ankita, & Pal Yogendra. Preparation & Assessment of Poly Herbal Anti - Dandruff Formulation. *The Open Dermatology Journal*. 2020; 14:22-27.
- [19]. Gholve Sachin, Nadarge Sachin, Hindale Sunil et al. Formulation and Evaluation of Polyherbal Antidandruff Powder Shampoo. *World Journal of Pharmaceutical Reserch*. 2015; 4(10):b1714-1731.